

Appl. No. 10/822,511
Amdt. dated May 10, 2007
Reply to Office Action of June 21, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Please amend claims 1, 7, 8, and 11 as follows:

1. (currently amended) A communication system, comprising:
a mobile unit operative to transmit periodic channel condition indicator signals, each indicator signal including an encoded indicator providing information relating to a signal to noise ratio being experienced by the mobile unit as sensed by the mobile unit; and
a base station operative to transmit data to the mobile unit, the base station being operative to receive the indicator signals from the mobile unit and generate a channel condition prediction reflecting a channel condition expected to be experienced by the mobile unit on an ongoing basis as conditions experienced by the mobile unit change, the channel condition prediction being based on a balanced estimate using the most recent channel condition indicator value and a mean of past channel condition indicator values, wherein the base station utilizes the channel condition prediction to dynamically manage data transmission to the mobile unit including scheduling transmission of data to the mobile unit.
2. (original) The system of claim 1, wherein the channel condition prediction assigns a greater emphasis to the mean of past channel condition indicator values during rapidly changing channel conditions and a greater emphasis to the most recent channel condition indicator values during more slowly changing channel conditions.

Appl. No. 10/822,511
Amdt. dated May 10, 2007
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3. (original) The system of claim 2, wherein the channel condition prediction is computed by assigning a weight to the most recent channel condition indicator value and the mean of past channel condition indicator values, the relative weights being influenced by the rate of change in the channel condition.

4. (original) The system of claim 3, wherein the weights assigned to the most recent channel condition indicator value and the mean channel condition indicator value depend on a gradient of past channel condition indicator values.

5. (original) The system of claim 4, wherein the mobile unit transmits a channel condition indicator to the base station at each timeslot, a timeslot being a time period during which communication takes place, as defined by a standard under which the system operates, and wherein the base station receives a channel condition indicator value during each timeslot, the base station maintaining an average of channel condition indicator values, the base station computing a channel condition prediction during each timeslot, each channel condition prediction reflecting an expected channel condition expected to prevail at the mobile unit a specified number of timeslots in the future from the most recent channel condition.

6. (original) The system of claim 5, comprising a plurality of mobile units, each transmitting periodic channel condition indicators to the base station, wherein the base station computes periodic channel condition predictions for each mobile unit and uses the future channel condition predictions to select a mobile unit for service and to select a codeword size for transmission to each mobile unit.

Appl. No. 10/822,511
Amdt. dated May 10, 2007
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7. (currently amended) A base station for communicating with a plurality of mobile units, comprising:

an air interface for receiving transmissions from the mobile unit, periodic ones of the transmissions including an encoded channel condition indicator providing information relating to a signal to noise ratio being experienced by the mobile unit as sensed by the mobile unit; and

a predictor for receiving channel condition indicator values and generating future channel condition predictions on an ongoing basis reflecting a future channel condition expected to be experienced by each mobile unit, each of the future channel condition predictions being based on a balanced estimate using the most recent channel condition indicator value for the mobile unit and a mean of past channel condition indicator values for the mobile unit; and

a scheduler for making dynamic adjustments based upon said generated future channel conditions predictions to respond to changing channel conditions experienced by the mobile unit including adjusting scheduling of data transmission to the mobile unit.

8. (currently amended) An apparatus for generating a channel condition prediction and making dynamic adjustments for each of a plurality of mobile units, comprising:

a data interface module for retrieving encoded channel condition indicators, each encoded channel condition indicator being received from a mobile unit and reflecting past channel conditions experienced by the mobile unit as sensed by the mobile unit; and

a computation module for computing a mean channel condition indicator value for each mobile unit on an ongoing basis as conditions experienced by each mobile unit change, based on a mean of past channel condition indicators associated with the mobile unit and for generating a

Appl. No. 10/822,511
Amdt. dated May 10, 2007
Reply to Office Action of June 21, 2006

channel condition prediction based on a balanced estimate using the most recent channel condition indicator value and said computed mean channel condition indicator value; and
a scheduler for making dynamic adjustments based upon the generated channel condition prediction including adjusting scheduling of data transmission to the mobile unit.

9. (previously presented) The apparatus of claim 8, wherein the computation module assigns a greater emphasis to said computed mean channel condition indicator value during rapidly changing channel conditions and a greater emphasis to the most recent channel condition indicator value during more slowly changing channel conditions.

10. (previously presented) The apparatus of claim 9, wherein the computation module employs said mean computed channel condition indicator value, the most recent channel condition indicator value and additional recent channel condition indicator values to generate the channel condition prediction.

11. (currently amended) A method of channel condition prediction, comprising the steps of:

receiving and storing on an ongoing basis a succession of encoded channel condition indicators from each of a plurality of mobile units, each channel condition indicator received from a mobile unit reflecting a channel condition experienced by the mobile unit as sensed by the mobile unit;

generating channel condition predictions for each mobile unit on an ongoing basis, each channel condition prediction reflecting a balanced estimate using the most recent channel condition indicator value and a mean of past channel condition indicator values; and

Appl. No. 10/822,511
Amdt. dated May 10, 2007
Reply to Office Action of June 21, 2006

making dynamic adjustments based upon the channel condition predictions to respond to changing channel conditions experienced by the plurality of mobile units including adjusting scheduling of data transmission to the mobile units.

12. (original) The method of claim 11, wherein each channel condition prediction reflects a greater emphasis on the mean of past channel condition indicator values during rapidly changing channel conditions and a greater emphasis on the most recent channel condition indicator values during more slowly changing channel conditions.

13. (original) The method of claim 12, wherein the step of generating the channel condition predictions includes assigning a weight to the most recent channel condition indicator value for each mobile unit and the mean of past channel condition indicator values for each mobile unit, the relative weights being influenced by the rate of change in the channel condition.

14. (original) The method of claim 13, wherein the weights assigned to the most recent channel condition indicator value and the mean channel condition indicator value depend on a gradient of past channel condition indicator values.

15. (original) The method of claim 14, further comprising a step of managing data transmission using the channel condition predictions.